

Kunal K Mehta

Graduate Student Researcher, Stanford University
Department of Chemical Engineering
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Education

- 2013 (*expected*) Doctor of Philosophy in Bioengineering, Stanford University
2010 (*expected*) Master of Science (by Research) in Chemical Biology, University of Oxford
2008 Bachelor of Science *cum laude* in Bioengineering, University of California, Los Angeles

Research experience

- 2009–present Stanford University *Graduate student researcher*
Department of Chemistry
Professor Steven G Boxer, advisor

Developing a silicon chip-based system for studying membrane proteins, including photosynthetic reaction centers.
- 2008–2009 University of Oxford *Postgraduate researcher*
Department of Chemical Biology
Professor Hagan Bayley, advisor

Developed robust and portable droplet-interface bilayer platforms for the construction of sensing devices and energy-producing networks

Worked with another research group to develop a method to attach individual channel proteins inside nanofabricated holes in inorganic membranes for chemical, biological and medical sensing applications
- 2006–2008 University of California, Los Angeles *Undergraduate researcher*
Department of Bioengineering
Professor Jacob J Schmidt, advisor

Worked in a team to use extremely sensitive, low-noise electrical measurements on single α -Hemolysin pore proteins to identify DNA nucleotides for the purpose of single-molecule DNA sequencing

Publications

- 2008 Robert F Purnell, *Kunal K Mehta*, Jacob J Schmidt “Nucleotide identification and orientation discrimination of DNA homopolymers immobilized in a protein nanopore”, *Nano Letters* **2008** 8(9):3029–3034. Selected as a “Nano Picks article” in ACS Nanotation¹
- 2008 *Kunal K Mehta*, Robert F Purnell, Jacob J Schmidt “Ultra low-noise current measurements of single-stranded DNA inside a biological nanopore”, *UCLA Undergraduate Science Journal* **2008** 21:93–96. Won UCLA vice provost’s award for research paper in the physical sciences

¹ <http://community.acs.org/nanotation/?TabId=98&ReviewId=82>

Awards, fellowships & scholarships

- 2010–2013 U.S. Department of Energy Office of Science graduate research fellowship
- 2010 Honorable Mention, U.S. National Science Foundation graduate fellowship program
- 2009–2011 Bioengineering department graduate fellowship, Stanford University
- 2009 Postgraduate travel grant, Hertford College, Oxford
- 2008–2009 International research fellowship, Whitaker Foundation
- 2008 UCLA Vice Provost's Award for research paper in the physical sciences
- 2008 The Faculty Undergraduate Scholarship, UCLA School of Engineering and Applied Science
- 2007–2008 Research fellowship, UCLA Undergraduate Research Scholars Program
- 2007 Dean's Prize for outstanding research, UCLA College of Letters & Science
- 2007 Summer research fellowship, Amgen Scholars Program
- 2006 Summer research fellowship, California NanoSystems Institute
- 2004–2008 Regents Scholarship, University of California, Los Angeles
- 2004–2008 U.S. National Merit Scholarship

Selected presentations

Click on titles for PDF versions of posters

- 2009 *Kunal K Mehta* and Hagan Bayley “Development of robust and versatile droplet-interface bilayer platforms”. Poster presented at the 2009 Biophysical Society annual meeting, 28 February–4 March 2009
- 2008 *Kunal K Mehta*, Robert F Purnell, Jacob J Schmidt “Effect of strand orientation on blockage currents of single-stranded DNA immobilized within a biological nanopore”. Poster presented at the 2008 Biophysical Society annual meeting, 2–6 February 2008
- 2007 *Kunal K Mehta*, Robert F Purnell, Jacob J Schmidt “Nucleotide sequencing and orientation detection of DNA in a biological nanopore”. Poster presented at UCLA undergraduate research conference, 21 May 2007. Won UCLA Dean's Prize for outstanding research

Extracurricular affiliations

- 2008–present Biophysical Society
- 2007–present Tau Beta Pi engineering honor society
- 2005–2008 UCLA Biomedical Engineering Society
Director of Corporate Outreach in 2006–2007: organized Science Expo vendor showcase (20 companies and 350 attendees; \$5000 in profits raised for the Society)

Additional areas of expertise

Experienced with Mathematica, MATLAB and LabVIEW programming environments
Familiar with COMSOL Multiphysics modeling and simulation software
Experienced with standard photolithography and clean room microfabrication procedures
Experienced with single ion channel measurements and Axopatch patch-clamp system
Competent with DNA maxiprep and in-vitro transcription and translation protein expression protocols

Relevant coursework

2009 **Stanford University**

Engineering & Science

Molecular and cellular bioengineering

Cellular biophysics

Graduate School of Business

Social and ethical issues in the biotechnology industry

2004–2008 **University of California, Los Angeles**

Engineering

Topics in biophysics, channels and membranes

Theory of nanomaterials

Statistical thermodynamics of biological systems

Biomedical sensors

Micromachining and microelectromechanical systems

Programming with numerical methods applications (MATLAB)

Laser-tissue interactions

Laboratory coursework

Nanoscale fabrication, characterization and biodetection lab

Introduction to micromachining & microelectromechanical systems lab

Bioengineering senior year design course

Biophysics lab – electricity and magnetism; mechanics

Physics

Quantum mechanics

Optical physics

Biophysics – electricity and magnetism; statistical thermodynamics; mechanics

Mathematics

Linear algebra

Integral and differential calculus of several variables

Chemistry and Life Sciences

Biochemistry: introduction to structures, enzymes and metabolism

Organic reactions, pharmaceutical structures and activities

Introduction to molecular biology

Interests

Nature and architecture photography (www.flickr.com/photos/kkmehta/)

Classical violin, especially chamber music